Nutritional composition and in vitro evaluation of the antioxidant properties of various dates extracts (Phoenix dactylifera L.) from Libya.

ABSTRACT

The aim of this study was to examine the nutritional content and antioxidant potential of three date fruit varieties (Phoenix dactylifera L.) native to Libya, namely, Bekraray, Deglet-nour and Khathori. The fruits were collected from three districts of Libya covering the northern, southern and eastern areas, respectively. The fruits were pitted and the flesh was extracted at 60° C for 6 h. The antioxidant activity of the extract was measured using 1-diphenyl-2-picrylhydrazyl (DPPH) method and iron (3) reduction (FRAP) assay. The Total Phenolic Content (TPC) of the date was measured using the Fohn-Ciocalteau method. The results showed that the nutritional content of dates varied by source. The flesh of Bekraray dates contained high percentage of carbohydrates (76.97%), vitamin C (8.50 mg 100 g) and potassium (6043.2 mg kg-1) whereas, Deglet-nour variety demonstrated the high percentage of total sugar (73.25%), vitamin A (10.50 µ/100g) and vitamin E (12.98 mg kg-1). On the other hand, Khathori variety showed high percentage of vitamin B2, magnesium, calcium, sodium and ferum with concentrations of 824.98, 660.74, 614.21,485.86 and 20.29mg kg-1, respectively. The Bekraray dates exhibited a significantly high concentration of TPC (p<0.05) from those of the two other varieties. The antioxidant activity correlated positively with the TPC of the extracts. The Bekraray also showed high FRAP value and free radical scavenging activity (DPPH) among the studied date varieties and the values corresponded to 13.46±0.11 umol (Fe)/g and 78.9%, respectively. These results suggest that Libyan dates varieties have a high nutritional value and possess beneficial antioxidant properties. Bekraray date was found to be superior than Deglet-nour and Khathori variety.

Keyword: Antioxidant; Dates palm; Phoenix dactylifera.